

K. TYPHOON NANCY (071200Z-170600Z SEPTEMBER 1961)

AT 070000Z A LOW APPEARED ON THE SURFACE MAP W OF KWAJALEIN ATOLL MARKING THE BEGINNING OF WHAT WAS TO BECOME THE MOST PROLONGED TYPHOON OF THE SEASON. THE FIRST TROPICAL DEPRESSION WARNING WAS ISSUED AT 071200Z AND THE SYSTEM WAS UPGRADED TO A TROPICAL STORM AT 080000Z WHEN IT BECAME OBVIOUS THAT INTENSIFICATION WAS TAKING PLACE. BY THE TIME A RECONNAISSANCE FIX COULD BE MADE, NANCY HAD SURFACE WINDS OF 125 KTS REVEALING THAT SHE WAS AN "EXPLOSIVE DEEPENER" AND HAD PROBABLY REACHED TYPHOON INTENSITY AT 071800Z.

FROM THE TIME OF THE FIRST WARNING NANCY FOLLOWED A SMOOTH WESTERLY TRACK CURVING SLIGHTLY TOWARD THE N. SHE CONTINUED TO INTENSIFY, PASSING 85 MI SSW OF GUAM AT 101800Z WITH MAXIMUM SURFACE WINDS OF 180 KTS. AFTER REACHING THE PEAK INTENSITY OF 185 KTS NANCY STARTED WEAKENING AND BEGAN A MORE PRONOUNCED RECURVATURE, PASSING 40 MI E OF OKINAWA AT 141500Z AND OVER NAZE AT 150000Z. AT THIS TIME MOST FORECASTING RULES INDICATED THAT NANCY WOULD SWING WIDE AROUND JAPAN AND RECURVE INTO THE JAPAN SEA. HOWEVER, BY 151200Z A MARKED CHANGE HAD TAKEN PLACE IN THE UPPER AIR PATTERN AROUND THE TYPHOON. NANCY'S DIAMETER DIMINISHED SIGNIFICANTLY AT THE 500 MB LEVEL AND THE SUB-TROPICAL HIGH WHICH HAD BEEN QUASISTATIONARY NEAR 30N 145E SHIFTED 10 DEGREES TO THE E. NANCY THEN ACCELERATED AND RECURVED MORE SHARPLY, BUT UPON ENCOUNTERING THE JAPANESE LAND MASS SHE DEFLECTED BACK TOWARD THE N, PASSING DIRECTLY OVER MUROTO ZAKI AT APPROXIMATELY 160100Z. THE TYPHOON ENTERED HONSHU NEAR OSAKA AT 160430Z, AND BY THIS TIME HAD WEAKENED TO 75 KTS. SHE MADE A RAPID TRANSIT ACROSS HONSHU EMERGING INTO THE JAPAN SEA NEAR NANA0 AND CONTINUED NNE TO HOKKAIDO.

THE FINAL WARNING WAS ISSUED AT 170600Z WHEN NANCY HAD CROSSED INTO THE SEA OF OKHOTSK AND HAD OBVIOUSLY LOST HER TROPICAL CHARACTERISTICS. THE MAXIMUM SURFACE WINDS WERE 55 KTS AT THAT TIME.

A TOTAL OF 40 WARNINGS WERE ISSUED, COVERING A PERIOD OF 9 DAYS AND 18 HOURS. NANCY'S SURFACE WINDS REMAINED OVER 100 KTS FOR 8 DAYS, FROM 080000Z TO 160000Z. SHE TRAVELED 4275 MI AT AN AVERAGE SPEED OF 18 KTS. THE MINIMUM SPEED WAS 11 KTS ON 15 SEPTEMBER AND THE MAXIMUM SPEED WAS 55 KTS WHEN NANCY WAS OVER NORTHERN JAPAN. WARNINGS WERE ISSUED ON TYPHOONS OLGA AND PAMELA DURING THE LIFE OF NANCY.

THE DAMAGE CREATED BY TYPHOON NANCY WAS PHENOMENAL. IT TRAVELED ACROSS SOME OF THE MOST DENSELY POPULATED AREAS THAT EXIST, YET THE DEATH TOLL PROBABLY DID NOT EXCEED 225, AND THE DAMAGE WAS SMALL COMPARED TO THAT CREATED BY TYPHOONS OF EARLIER YEARS. EXAMINATION OF AVAILABLE INFORMATION INDICATES THAT PREPARATIONS WERE MADE WELL IN ADVANCE OF THE ARRIVAL OF NANCY FOR PROTECTION AGAINST STRONG WINDS, FLOODING, AND HIGH SEAS. THIS IS PARTICULARLY NOTABLE IN JAPAN, FOR THE PATH OF NANCY WAS SUCH THAT IT AFFECTED ALL OF THAT NATION TO

SOME DEGREE.

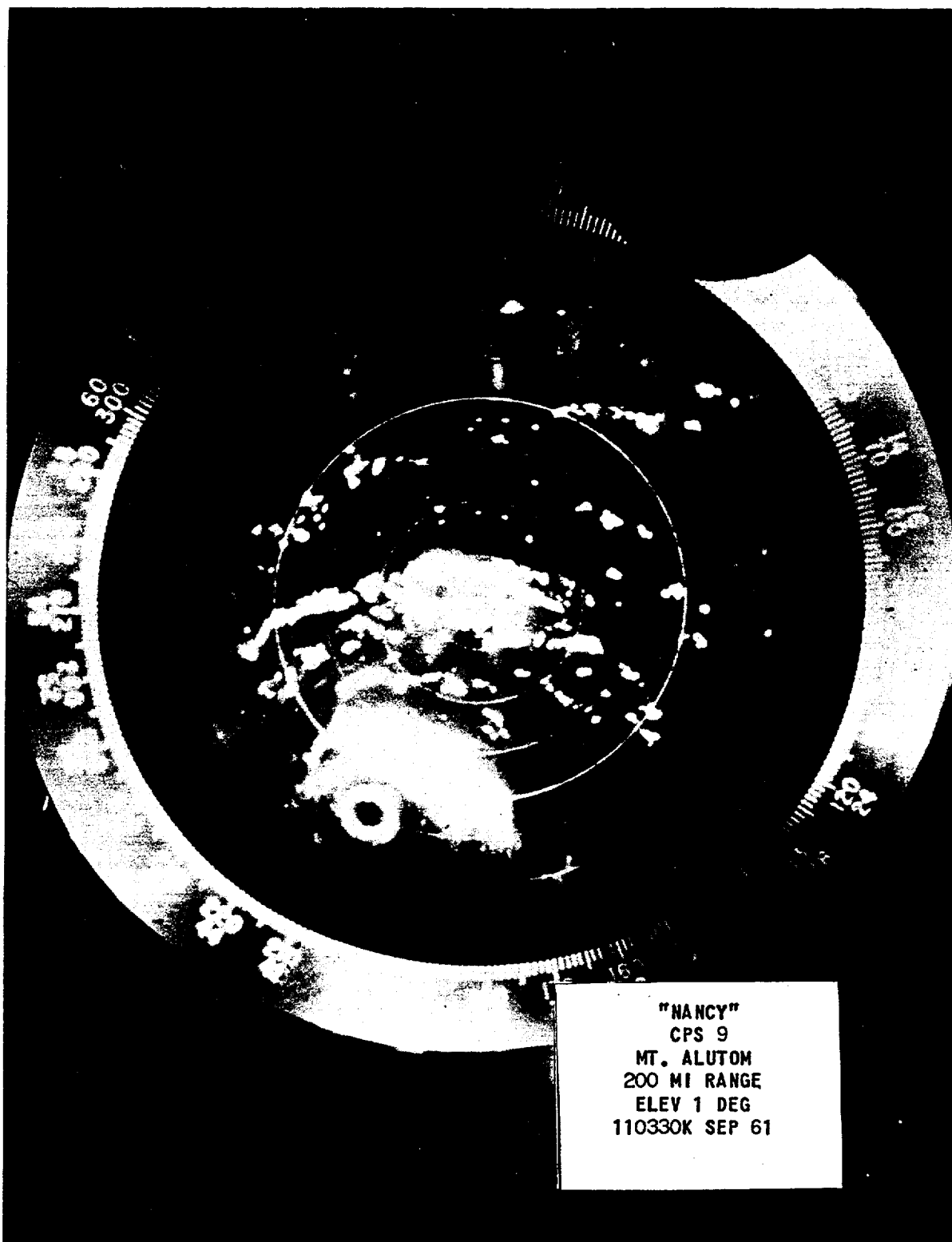
A SUMMARY OF DAMAGE IS PRESENTED HERE:

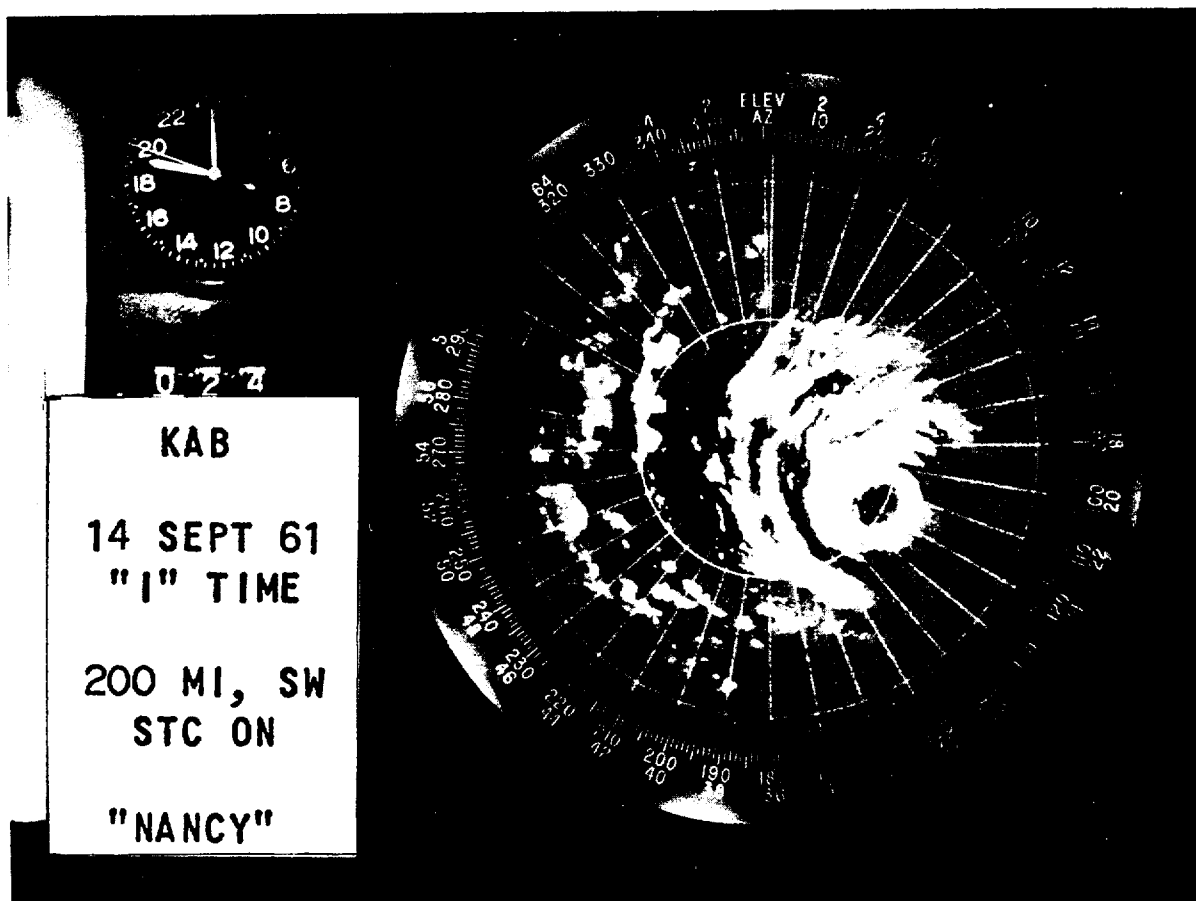
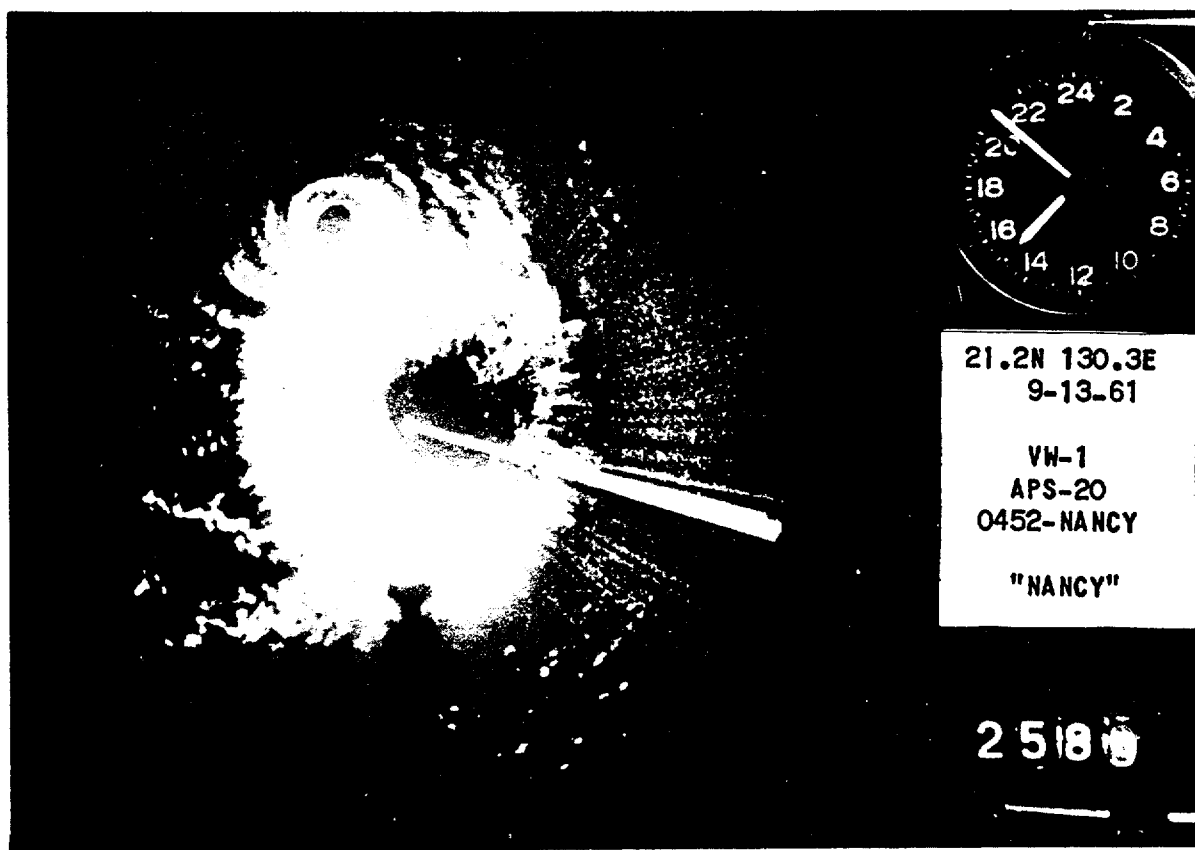
GUAM: ROADS WERE DAMAGED TO THE EXTENT THAT REPAIRS WERE ESTIMATED TO COST APPROXIMATELY \$40,000. ABOUT 50 PERCENT OF CROPS ON THE SOUTHERN END OF THE ISLAND, SUCH AS BEANS, BANANAS, TOMATOES, BREADFRUIT, MELONS, AND CUCUMBERS WERE DESTROYED DUE TO STRONG WINDS AND HEAVY RAIN. THE NORTHERN END OF THE ISLAND SUFFERED LITTLE DAMAGE.

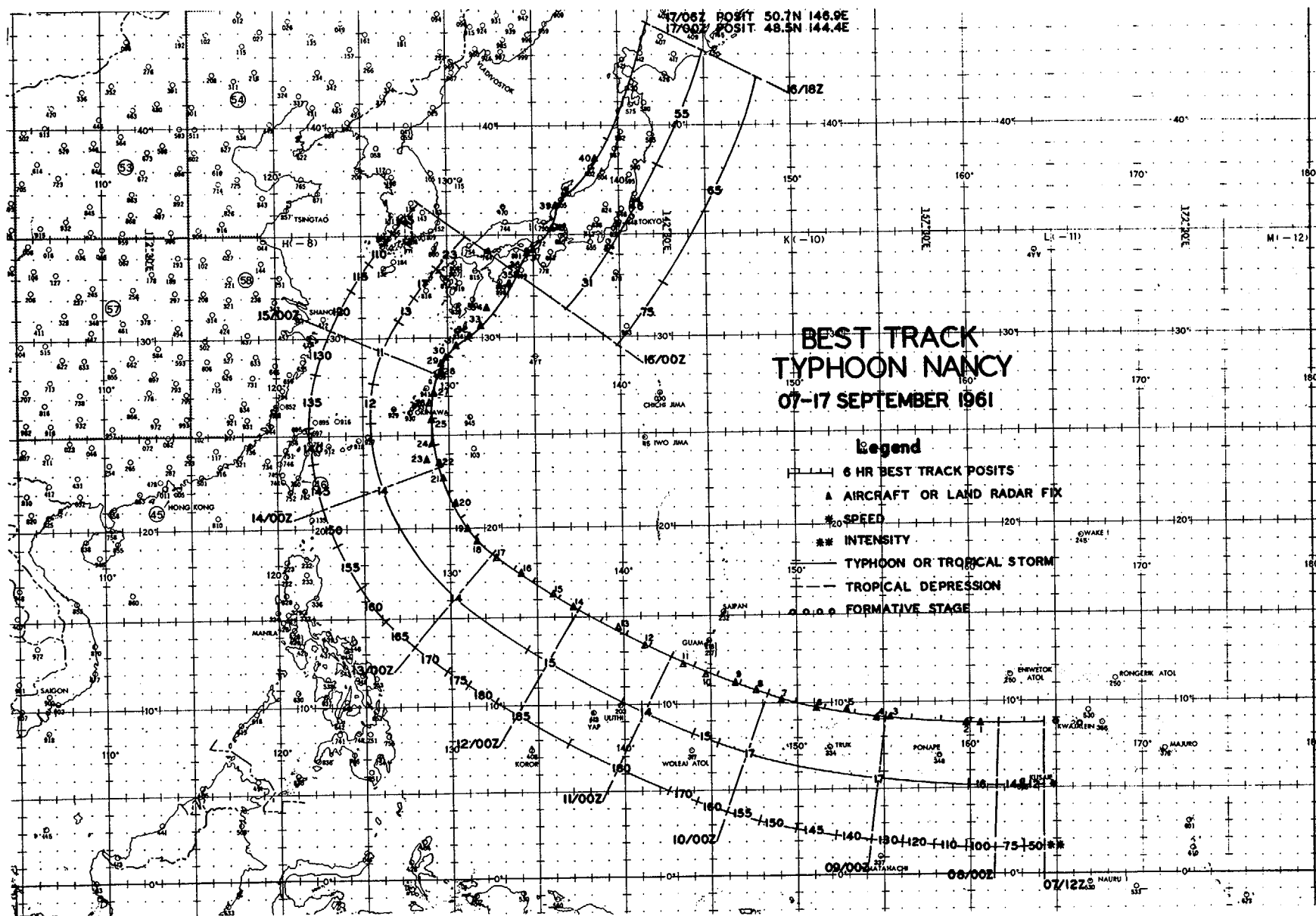
OKINAWA: EXTENSIVE CROP AND STRUCTURAL DAMAGE AND FLOODING OF LOW LYING AREAS OCCURRED BUT NO LOSS OF LIFE.

AMAMI-O-SHIMA: ONE PERSON MISSING, ONE SERIOUSLY HURT, AND 152 PEOPLE WERE LEFT HOMELESS. ONE SHIP WAS SUNK, COMMUNICATIONS WERE LOST AND EXTENSIVE FLOODING OF HOMES AND CROPS ALSO OCCURRED.

JAPAN: THERE WERE 172 PERSONS REPORTED DEAD, 18 MISSING, AND 3,184 INJURED. THE JAPAN NATIONAL POLICE REPORTED THAT AS A RESULT OF NANCY, MORE THAN 650,000 PERSONS WERE LEFT HOMELESS, 11,539 HOMES WERE DESTROYED, 32,604 HOMES WERE PARTIALLY DESTROYED, AND 280,078 HOMES WERE FLOODED. MORE THAN 300 SHIPS WERE SUNK, AND MANY DAMAGED. THE FLOODS CAUSED A LOSS OF 566 BRIDGES, CAUSED 1,146 LANDSLIDES AND CUT ROADS AT 2,053 PLACES. JAPANESE OFFICIALS SAID NANCY WAS RATED SIXTH IN THE NUMBER OF PERSONS KILLED BY AN INDIVIDUAL TYPHOON. TYPHOON VERA KILLED 4,464 PERSONS IN NAGOYA ON 26 SEPTEMBER 1959, THE WORST IN JAPANESE HISTORY.







LAND RADAR AND AIRCRAFT FIXES - TYPHOON NANCY

FIX NO.	TIME	LAT.	LONG.	UNIT METHOD & ACCY	MAX SFC WND	MAX 700MB WND	MIN 700MB HGT	MIN SLP MBS	700MB T/T _D (°C)	EYE CHARACTERISTICS
1	080230Z	08.8N	160.8E	LND/RDR	---	---	----	---	-----	-----
2	080625Z	08.9N	160.0E	56-P-06	125	60	9580	978	13/09	WALL CLDS ALL QUADS ELLIP 30MI N-S & 20MI E-W
3	082130Z	09.1N	155.5E	56-P-05	130	90	9220	---	16/06	CIRC DIA 10MI
4	090100Z	09.1N	154.8E	56-P-10	150	100	9080	956	18/11	WELL DEFINED CIRC 25MI DIA
5	090706Z	09.5N	153.0E	56-P-05	165	110	8410	928	16/13	CIRC 10MI DIA NO CLDS IN EYE
6	091330Z	09.7N	151.2E	VW1-R-03	---	---	----	---	-----	DIA 8MI
7	092130Z	10.1N	149.2E	56-P-03	180	120	8240	---	17/12	CIRC 8MI DIA WALL CLDS ALL QUADS
8	100230Z	10.8N	147.7E	56-P-02	200	130	7890	925	16/15	CIRC 8MI DIA
9	100705Z	11.2N	146.4E	56-P-02	200	160	7770	916	20/08	CIRC DIA 25MI
10	101345Z	11.7N	144.8E	LND/RDR	---	---	----	---	-----	-----
11	101950Z	12.2N	143.3E	LND/RDR	---	---	----	---	-----	-----
12	110700Z	13.3N	141.2E	56-P-02	200	130	7190	901	20/15	17MI DIA, WELL DEFINED
13	111330Z	14.3N	139.9E	VW1-R-03	---	---	----	---	-----	CIRC 16MI DIA
14	120045Z	15.7N	137.2E	56-P-02	200	150	6801	888	20/17	CIRC 6MI DIA
15	120630Z	16.3N	136.0E	56-P-02	200	130	6990	890	20/18	ELLIP N-S 18MI E-W 12MI
16	121400Z	17.5N	134.1E	VW1-R-03	---	---	----	---	-----	CIRC 25MI DIA
17	122145Z	18.2N	132.8E	56-P-08	180	140	6900	889	18/14	CIRC DIA 10MI
18	130415Z	19.2N	131.5E	56-P-01	150	140	6885	889	21/16	CIRC 25MI DIA
19	130830Z	19.9N	131.0E	56-P-01	120	130	6990	882	18/15	CIRC 15MI DIA
20	131453Z	21.2N	130.3E	VW1-R-05	---	---	----	---	-----	INNER EYE 27MI DIA OUTER EYE 52MI DIA

LAND RADAR AND AIRCRAFT FIXES - TYPHOON NANCY (CONT'D)

FIX NO.	TIME	LAT.	LONG.	UNIT METHOD & ACCY	MAX SFC WND	MAX 700MB WND	MIN 700MB HGT	MIN SLP MBS	700MB T/T _D (°C)	EYE CHARACTERISTICS
21	132200Z	22.7N	129.7E	56-P-05	160	125	7380	902	17/17	40MI DIA
22	140000Z	23.4N	129.4E	LND/RDR	---	---	---	---	---	-----
23	140245Z	23.7N	128.8E	56-P-05	150	135	7490	903	19/17	CIRC 50MI DIA
24	140525Z	24.6N	129.0E	LND/RDR	---	---	---	---	---	-----
25	141115Z	25.9N	129.0E	LND/RDR	---	---	---	---	---	-----
26	141500Z	26.7N	128.9E	LND/RDR	---	---	---	---	---	-----
27	141745Z	27.1N	129.1E	LND/RDR	---	---	---	---	---	-----
28	142320Z	28.1N	129.5E	LND/RDR	---	---	---	---	---	DIA 33MI
29	150356Z	28.7N	129.6E	56-P-01	120	87	7830	920	18/18	CIRC 60MI DIA WALL CLDS ALL QUADS
30	150600Z	29.0N	130.0E	LND/RDR	---	---	---	---	---	-----
31	151000Z	29.6N	130.6E	LND/RDR	---	---	---	---	---	-----
32	151300Z	30.1N	131.2E	LND/RDR	---	---	---	---	---	-----
33	151500Z	30.5N	131.6E	LND/RDR	---	---	---	---	---	-----
34	151800Z	31.4N	132.2E	LND/RDR	---	---	---	---	---	-----
35	152155Z	32.2N	133.1E	LND/RDR	---	---	---	---	---	-----
36	160000Z	33.1N	133.9E	LND/RDR	---	---	---	---	---	-----
37	160300Z	34.1N	134.7E	LND/RDR	---	---	---	---	---	-----
38	160530Z	35.2N	136.1E	LND/RDR	---	---	---	---	---	-----
39	160700Z	36.3N	136.2E	LND/RDR	---	---	---	---	---	-----
40	161100Z	38.5N	138.5E	LND/RDR	---	---	---	---	---	-----

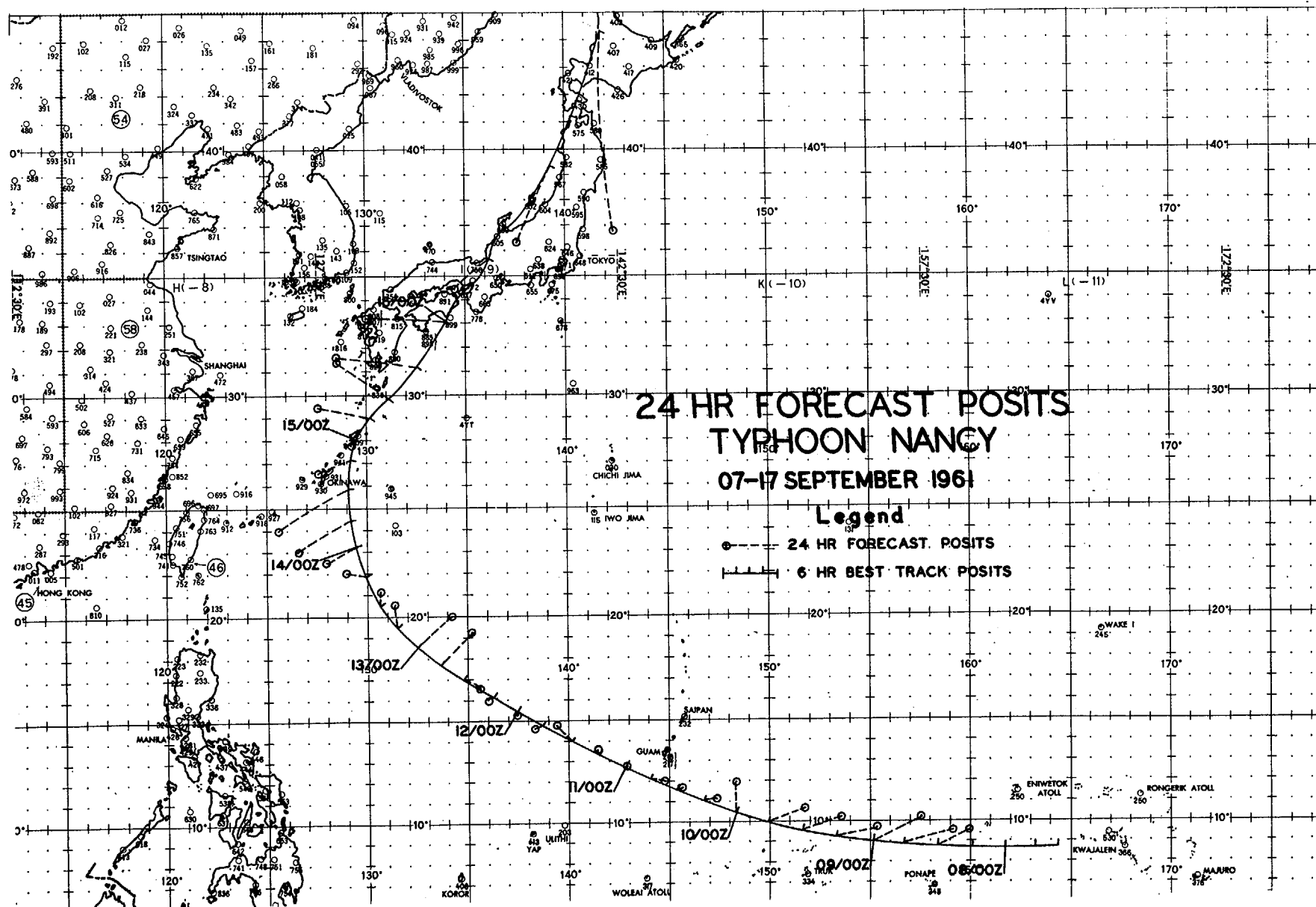
TYPHOON NANCY 07-17 SEP 1961
POSITION AND FORECAST VERIFICATION DATA

DTG	STORM POSITION		24 HR. ERROR	48 HR. ERROR
	LAT.	LONG.	DEG. DISTANCE	DEG. DISTANCE
071200Z	08.8N	164.3E	-----	-----
071800Z	08.8N	163.2E	-----	-----
080000Z	08.8N	161.8E	-----	-----
080600Z	08.9N	160.1E	-----	-----
081200Z	08.9N	158.4E	-----	-----
081800Z	09.0N	156.8E	-----	-----
090000Z	09.1N	155.1E	067-167	-----
090600Z	09.3N	153.3E	076-119	-----
091200Z	09.6N	151.7E	074-126	-----
091800Z	10.0N	149.9E	066-116	-----
100000Z	10.5N	148.3E	357-90	078-281
100600Z	11.0N	146.7E	079-31	086-184
101200Z	11.5N	145.2E	069-27	076-159
101800Z	12.0N	144.0E	360-48	077-154
110000Z	12.6N	142.8E	046-21	324-205
110600Z	13.2N	141.4E	344-23	336-25
111200Z	14.0N	140.1E	313-67	108-37
111800Z	14.8N	138.8E	263-35	112-95
120000Z	15.5N	137.5E	211-23	103-71
120600Z	16.2N	136.1E	213-19	078-70
121200Z	17.0N	134.9E	131-44	031-81
121800Z	17.7N	133.7E	045-121	115-37
130000Z	18.4N	132.3E	048-139	101-56
130600Z	19.4N	131.3E	356-64	118-41
131200Z	20.6N	130.6E	015-31	137-85
131800Z	21.9N	129.9E	297-54	063-120
140000Z	23.2N	129.4E	242-90	068-93
140600Z	24.6N	129.1E	236-167	261-84
141200Z	25.9N	128.9E	238-222	229-123
141800Z	27.2N	129.1E	245-93	243-226
150000Z	28.2N	129.3E	211-25	242-309
150600Z	29.1N	130.0E	283-130	248-316
151200Z	29.9N	131.1E	302-155	255-468
151800Z	31.2N	132.3E	277-200	262-287
160000Z	33.1N	134.0E	271-201	246-294
160600Z	35.5N	136.1E	231-104	251-373

TYPHOON NANCY 07-17 SEP 1961
POSITION AND FORECAST VERIFICATION DATA (CONT'D)

DTG	STORM POSITION		24 HR. ERROR	48 HR. ERROR
	LAT.	LONG.	DEG. DISTANCE	DEG. DISTANCE
161200Z	39.3N	139.2E	202-194	246-466
161800Z	44.6N	141.8E	177-465	227-660
170000Z	48.5N	144.4E	174-618	208-707
170600Z	50.7N	146.9E	154-494	192-747

AVERAGE 24 HOUR ERROR 133 MI
AVERAGE 48 HOUR ERROR 228 MI





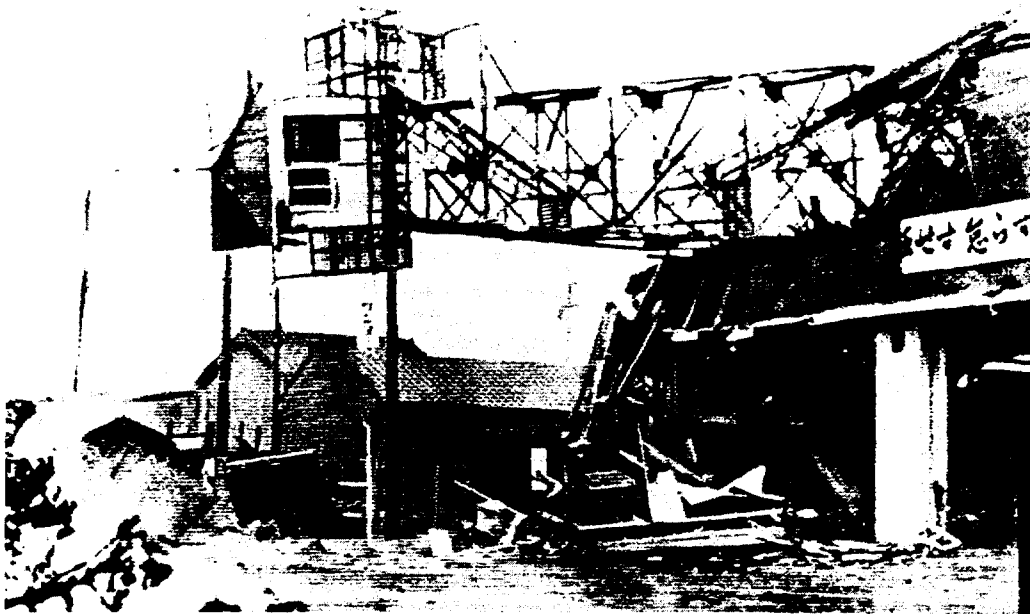
SHIP DAMAGED ON OKINAWA AS A RESULT OF WINDS AND SEAS ASSOCIATED WITH NANCY. SEPTEMBER 1961. (PACIFIC STARS AND STRIPES)



STRUCTURAL DAMAGE, NAHA, OKINAWA. NOTE INVERTED ROOF, CEILING AND SUPPORTS RESTING ON ROOF OF SHOP. SEPTEMBER 1961. (PACIFIC STARS AND STRIPES)



FLOODING CREATED IN TOKYO BY NANCY, EVEN THOUGH THE EYE OF THE TYPHOON WAS MORE THAN 160 MI AWAY. SEPTEMBER 1961. (PACIFIC STARS AND STRIPES)



STEEL FIRE OBSERVATION TOWER BROKEN IN HALF BY NANCY, OSAKA, JAPAN, 16 SEPTEMBER 1961. (AP WIRE PHOTO)